a noise-reduced speech signal. Adlersberg does not discuss mixture components and does not show adding a correction vector to a scaled feature vector to produce a clean feature vector.

Claim 1

Independent claim 1 provides a method for reducing noise in a noisy input signal. In claim 1, a function applied to a sequence of noisy channel feature vectors is fit to a sequence of clean channel feature vectors to determine at least one correction vector and at least one scaling vector. The scaling vector is multiplied by each noisy input feature vector in a sequence of noisy input feature vectors to produce a sequence of scaled feature vectors. A correction vector is added to each scaled feature vector to form a sequence of clean input feature vectors.

The invention of claim 1 is not shown or suggested in Adlersberg. In particular, Adlersberg does not show or suggest determining a correction vector or adding a correction vector to a scaled feature vector to form a clean feature vector.

In the Office Action, it was asserted that Adlersberg determined a correction vector at column 8, lines 11-67. However, the cited section does not mention forming a correction vector. Instead, the cited section discusses the formation of the signal to noise estimates and the formation of the Gain estimator based on the signal to noise estimates. The signal to noise estimates and the gain estimator are not correction vectors.

The Office Action also asserted that Adlersberg showed adding a correction vector to a scaled feature vector at column 10, lines 10-50. However, the cited section does not show or suggest adding two vectors together and in particular, does not show adding a vector to a scaled vector that was formed by multiplying a noisy input feature vector by a scaling vector.

Instead of using a correction vector, Adlersberg simply multiplies the noisy speech signal by the Gain estimator. Adlersberg does not determine a correction vector nor add a correction vector to a scaled vector to form a clean feature vector. As such, claim 1 is patentable over Adlersberg.

Claims 12 and 13

Independent claim 12 provides a method of reducing noise in a noisy signal. Under claim 12, a mixture component for a noisy feature vector is identified. A correction vector and a scaling vector associated with the identified mixture component are retrieved. The noisy feature vector is multiplied by the scaling vector to form a scaled feature vector and the scaled feature vector is added to the correction vector to form a clean feature vector.

The invention of claim 12 is not shown or suggested by Adlersberg because Adlersberg does not show the steps of identifying a mixture component for a noisy feature vector or retrieving a correction vector and a scaling vector associated with a mixture component.

In the Office Action it was asserted that Adlersberg showed a step of identifying a mixture component at column 8, line 11 to column 9, line 65. Applicants respectfully dispute this assertion.

The cited section never mentions a mixture component or identifying a mixture component for a noisy feature vector. In fact, the word "mixture" is not found in Adlersberg. There is simply no reference to a mixture component in Adlersberg.

The Office Action did not cite any section of Adlersberg as showing the step of retrieving a correction vector and a scaling vector associated with an identified mixture component. This is understandable since Adlersberg does not show this step.

The Office Action also asserted that Adlersberg showed a step of adding the correction vector to the scaled feature vector at Col. 10, lines 10-50. However, the cited section does not mention adding a correction vector to a scaled feature vector. Instead it discusses multiplying a noisy feature vector by a gain to produce a noise suppressed signal. However, multiplying is not the same as adding.

Since Adlersberg does not mention mixture components, retrieving a correction vector associated with a mixture component, or adding a correction vector to a scaled feature vector, it does not show or suggest the invention of claim 12 or claim 13, which depends therefrom.

Claims 24-26 and 29

Independent claim 24 provides a method of generating correction values for removing noise from an input signal. The method includes accessing a set of noisy channel vectors and a set of clean channel vectors. The noisy channel vectors are grouped into a plurality of mixture components and a correction value is determined for each mixture component based on the set of noisy channel vectors and the set of clean channel vectors.

Adlersberg does not show or suggest the invention of claim 24 because it does not discuss mixture components or grouping noisy channel vectors into mixture components.

In the Office Action, it was asserted that Adlersberg showed the step of grouping noisy channel vectors into mixture components at column 7, lines 30-45. However, the cited section does not mention mixture components. Instead, it discusses representing a frame of a speech signal as a set of frequency components k. There is no mention of grouping noisy feature vectors into mixture components. In fact, Adlersberg never mentions mixture components.

Since Adlersberg does not mention mixture components, it cannot show or suggest grouping noisy feature vectors into

mixture components or determining a correction value for each mixture component. As such, Adlersberg does not show or suggest the invention of claim 24 or claims 25, 26, and 29, which depend therefrom.

Conclusion

In light of the above remarks, claims 1-31 are patentable over Adlersberg. Reconsideration and allowance of the claims is respectfully requested.

The Director is authorized to charge any fee deficiency required by this paper or credit any overpayment to Deposit Account No. 23-1123.

Respectfully submitted,

WESTMAN, CHAMPLIN & KELLY, P.A.

By: _____

Theodore M. Magee, Reg. No. 39,758
Suite 1600 - International Centre
900 Second Avenue South
Minneapolis, Minnesota 55402-3319
Phone: (612) 334-3222 Fax: (612) 334-3312

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